ORAL ENGLISH LANGUAGE ASSESSMENT OF FIRST GRADE
CHILDREN IN BILINGUAL BICULTURAL EDUCATION:
EMPHASIS ON PHONOLOGY AND SYNTAX

By

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possible to make my dream come true.

And last, but not least--muchísimas gracias a los personas y los niños de los programas bilingües de Colorado que me daban tanta ayuda.

...siempre a todos...gracias.

TABLE OF CONTENTS

LIST OF TABLES

Abstract of Dissertation Presented to the Graduate
Council of the University of Florida in Partial
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The purpose of this study was to develop a reliable
instrument that could be used by teachers and staff in
Colorado to assist in the assessment of oral English
language, particularly the structure (syntax) and the pro-
nunciation (phonology) of first grade children in bilingual
bicultural education (BBE), and to relate the scores of the
instrument to seven variables: a) intelligence, b) the
child's age, c) the language spoken in the home, d) ethnicity,
e) the number of siblings in the child's family, f) kinder-
garten attendance, and g) the sex of the child.

Seventy-eight subjects were identified for the study.
These subjects were first graders who were participants in
BBE programs in Colorado during the school year 1974-75.
The children were tested using the researcher-developed
instrument, the Bass Sentence Repetition Task (BSRT), which

was developed on the basis of the contrastive analysis of English and Spanish to determine knowledge of oral English pronunciation and structure and the Peabody Picture Vocabulary Test (PPVT) for testing intelligence.

For the purpose of establishing reliability of the test instrument, language samples were collected using the BSRT. These samples were scored by three resource persons according to the rating system developed by the researcher. The Kuder-Richardson Formula 21 was applied to estimate the reliability of each section of the BSRT. The coefficient was .71 for pronunciation and .49 for structure. The combined judgments of three raters had the effect of tripling the length of the test. Applying the Spearman-Brown Formula to estimate a new reliability, a .88 coefficient for pronunciation and a .76 for structure were obtained. These established reliabilities for the BSRT are within acceptable limits for an instrument of this type.

Scores from the BSRT were analyzed using correlation analysis as well as multiple regression analysis to determine their relationships to the predictor variables. Correlation analysis found that intelligence, language spoken in the home, and ethnicity were correlated to the BSRT pronunciation score at the .01 level and the variables of intelligence and language spoken in the home were significant at the .05 level to the BSRT structure score with the sex variable at the .01 level.

The multiple regression analysis found that intelligence as measured by the PPVT to be a contributing factor to the measure of oral English pronunciation and structure as measured by the BSRT. Also the number of siblings in the child's family is considered a contributing factor in the prediction of oral English structure as measured by the BSRT.

CHAPTER I

INTRODUCTION TO STUDY

Within the United States live many groups of language-
different peoples. These are persons who speak a language
other than English and/or a dialect other than standard
English. In some parts of the United States, bilingual bi-
cultural education is offered as a means of bridging the
linguistic and cultural gap of language-different children
by affording the opportunity to learn school facts and con-
cepts in the native language while learning English as a
second language. Other school systems offer programs which
emphasize the development of oral English language to re-
place the native language spoken. Still other school systems
give no consideration to language differences, and all stu-
dents are required to communicate in English from the begin-
ning of the school experience (Robinett, 1971).

In recent years, Colorado legislators have questioned
the progress of the children exposed to the forementioned
programs. In order to assess the progress made by children
in various programs, the Colorado Legislature designated
funds for a state needs assessment (reflected by Colorado
legislation, see Senate Joint Resolution 20, Colorado Depart-
ment of Education, 1974). As a result of the assessment

which indicated that a considerably large number of children in Colorado public schools were in need of bilingual education, a bill requiring that public school systems provide such an education was drafted and approved by the legislature. This bill provides financial appropriations to Colorado school districts having fifty students or more than ten percent of the student population identified as being linguistically different (Earle, 1975).

Statement of the Problem

To enable teachers and staff to evaluate effectively the oral English of children participating in bilingual bicultural education (BBE) programs, the teachers of Colorado have needed reliable tools which could be used to assess the phonological as well as the syntactic abilities of their pupils. At the beginning of this study, there were no oral English assessment tools for identifying the English language differences of language-different pupils designed to take into consideration the specific regional dialect differences for use with youngsters in Colorado. Therefore, the purpose of this study was twofold: 1) to develop a reliable instrument that would enable teachers and staff to assess the phonology and syntax of the oral English of first grade children in BBE programs in Colorado and 2) to relate the results from this instrument to seven variables: a) intelligence, b) the age of the child, c) the language spoken in the home (i.e., English or Spanish), d) the ethnicity

of the child (i.e., Anglo or non-Anglo), e) the number of
siblings in the family, f) kindergarten attendance, and
g) the sex of the child.

Limitations of the Study

The researcher's study was bound by the following
limitations:

1. The study was limited to 78 children in the
   first grade in Colorado BBE programs identi-
   fied by the Colorado State Department of
   Education during the academic year 1974-75.

2. The researcher was only concerned with the
   development of an instrument that could
   help Colorado teachers and staff assess the
   oral English syntax and phonology of their
   students.

3. The variables considered in the study were
   confined to intelligence, age, language
   spoken in the home, ethnicity, number of
   siblings in the family, kindergarten atten-
   dance, and sex of the children participating
   in the study.

The extent to which the findings in this study can be
generalized to the populations in other BBE programs is
limited because the sample population was taken from one
specific area and gave consideration to the regional dialect
spoken in Colorado.

Justification for the Study

The need for an instrument that could be used by
teachers and staff in Colorado BBE programs to help assess
the oral English of first grade children has been recognized

for some time. In the needs assessment (Colorado Department of Education, 1975) mention was made of the lack of reliable instruments to measure the abilities of language-different children. The need for such instruments is becoming more widespread particularly with the growing number of programs in the state.

The information collected in this study could serve as a model for the development of additional instruments which would expand on the test items, sample other linguistic features and identify additional information about the language used as well as be of assistance to others who are interested in the measurement of the abilities of the language-different for which this was developed. This information could even be helpful to those who are dealing with other types of populations, such as school programs for Vietnamese refugees, both as an example of how to devise sentence repetition task and how to use the results.

Assumptions

The basic assumptions made for this study were that the English language syntax and the phonology of first graders in BBE programs could be assessed, and that other variables extraneous to the language itself have some effects on the acquisition of the language children use in the first grade.

Definition of Terms

        To assist the reader, the following terms have been
defined as used by the researcher:

Bilingual Bicultural Education (BBE) - An educational setting
        in which two languages are used as the medium of in-
        struction and the respective cultures of the languages
        are reflected and actively incorporated in the class-
        room setting.

Bilingual - A person who speaks and understands two lan-
        guages and has displayed an understanding of the cul-
        tures of the two languages.

English-speaking - A person who speaks English as well as
        understands it. This person may speak any one of a
        number of English dialects.

English-only-education Environment (EOE) - An educational
        setting in which English is the only language used as
        the medium of instruction.

Language-different - Those who are identified as speaking a
        language other than English and/or a dialect other
        than standard English.

Mexican American or Chicano - Those individuals of Spanish
        surname and/or those who refer to themselves as
        Chicanos and are identified as such by school records.

Oral Language Development - Defined as a function of the
        measurements on the sentence repetition task.

Phonology - The study of the sound system of a language
        Phonology encompasses the understanding of, and the
        ability to hear and produce the sounds of a language.

Regional Dialect - A variety of Standard English (or the
        standard form of any other language) as spoken by the
        educated population of a given region.

Sentence Repetition Task (SRT) - The instrument designed for
        use in this study to gather and assess oral language
        samples. This instrument used outside of this study
        will be known as the BASS SRT, 1975.

Syntax - That part of grammar which studies the construction
        and arrangement of words in a sentence.

Hypotheses of the Study

The present study considered the following hypotheses:

1. There is no relationship between the scores on the BSRT and the intelligence score on the Peabody Picture Vocabulary Test.

2. There is no relationship between the scores on the BSRT and the age of the child.

3. There is no relationship between the scores on the BSRT and the language (a. Spanish, or b. English) spoken in the home.

4. There is no relationship between the scores on the BSRT and the ethnicity (a. non-Anglo, or b. Anglo) of the child.

5. There is no relationship between the scores on the BSRT and the number of siblings in the family.

6. There is no relationship between the scores on the BSRT and kindergarten attendance.

7. There is no relationship between the scores on the BSRT and the sex of the child.

Each of these hypotheses reflects the review of literature and the information some authorities have found to have some effect on the oral language development of children.

Procedures

In order to test the hypotheses as previously stated, the following procedures were used:

Sample

The sample population for this study was drawn from children who attended the first grade during the academic

year 1974-75. These pupils were selected from participants attending BBE programs from five different schools in three areas of Colorado.

Instrumentation and Data Collection

The researcher developed the Bass Sentence Repetition Task (BSRT) which was recorded by a person with a regional English dialect identified as a Coloradan. The sentences constructed for the instrument reflected local English usage and the contrastive analysis of the linguistic features of English and Spanish. This particular BSRT was designed to assess the use of the specific linguistic features of phonology and syntax.

In the BSRT, the oral English samples were divided into the categories of oral English structure and English pronunciation for the purpose of scoring. The scoring was done by a group of three resource persons who received training in the techniques of interpreting the SRT.

The Peabody Picture Vocabulary Test (PPVT) provided a measure of the subjects' verbal intelligence through measuring their listening vocabulary.

Other information relating to the subjects, i.e., the number of siblings in the family, the age, the language spoken in the home, ethnicity, kindergarten attendance, and the sex of the child was obtained from school records and through teacher interviews.

Data Treatment

All treatment samples were scored by three resource persons with expertise in the language and culture of the sample population and were trained in the use of the evaluative procedure developed for assessing the language samples. This procedure required that the corrections be made from a contrastive analysis of Spanish and English.

The scores from the instruments were compared with the seven forementioned variables by employment of the technique of multiple regression.

Organization of the Study

The research study is presented in five chapters with a bibliography and an appendix. This first chapter has served as an introduction to the study, as well as a description of how the study was carried out.

Chapter 2 contains a review of selected literature and research that is related to the topic of the study. This review led to the formulation of the hypotheses.

Chapter 3 presents data from the study and a description of how it was collected.

Chapter 4 includes the analysis of the collected data and the conclusions drawn in relation to the stated hypotheses.

Chapter 5 summarizes the study and includes recommendations based on the findings.

The bibliography contains all sources and references of information and precedes the appendices. The appendices include letters, forms, and other information used in contacting school BBE programs. Also copies of the BSRT used as well as the qualifications and information on the resource persons, and other supportive information relating to this study are found in the appendices.

CHAPTER II

REVIEW OF SELECTED LITERATURE

Introduction

The concern of this study was focused on developing a tool for assessing the oral English of those children in Colorado who were first graders and who were participating in bilingual bicultural education (BBE).

A consideration of the development of assessment tools for effective evaluation of the oral English of children participating in BBE programs requires a preliminary understanding of several fields of knowledge which relate to the question. First, how is oral language acquired? Next, how is a second language acquired? Third, how can oral language be measured?

Oral First Language Acquisition

All normal children master their particular first language and acquire all the basic operations of adult grammar by the age of four regardless of native language or social settings, even though they may not verbally use these operations at all times (McNeill, 1971; Slobin, 1972; and Bass, 1974). The young children extract sounds from the language that is spoken to them and with them (Chomsky, 1965;

and Katz, 1966), but they are not conscious that they are doing this and cannot say how they go about doing it (McNeill, 1971).

Research by Ervin-Tripp and Miller (1964) substantiates the theory that early language development reflects generalizations of adult operations. Language includes some degree of imitation but more important, includes the ability to generalize. For example, a young child will say "dog," "toy," or "foot," but will over-generalize in making plurals which may result in "dogs," "toys," or "foots." Similar findings were noted in the case of the regular past tense: "walk" became "walked," "sell" became "selled," "go" became "goed." The ability to generalize and to extend production of language is basic to first language learning.

First language learners acquire the ability to use language through sequential steps (Slobin, 1972). Menyuk's (1969) research states that levels of language development can be delineated and studied; therefore, she correlates the process of language development with the process of maturation.

In the initial stages of language acquisition, the child demonstrates an unlimited phonetic ability (Saville-Troike, 1973b). This phonetic ability soon is further developed to include single words. During the next stages the child learns noun and verb inflections leading to the acquisition of syntax. By age four or five, the child has

acquired essentially all basic language structures (Chomsky, 1969). Beyond this age level to about puberty, the child continues to refine his or her language learning (Saville-Troike, 1973b).

The learner of the first language also acquires the ability to use the language communication skills: listening and reading as well as speaking and writing (Zintz, 1969). Through the skills of listening and reading language is received. As the learner matures, his or her ability to decode what is received through these skills is increased. The skills of speaking and writing serve as a means of transmitting language. Likewise, as the learner gains more experience, the ability to transmit language increases (Ruddell, 1974).

Chomsky (1965) emphasized that the observation of the child's use of the communication skills (language performance) is not the only component of language, but that usage (language competency) is also important. Language performance can be observed directly, but language competency is that which underlies observable language performance (Ruddell, 1974). Jakobovits' (1971) findings further support this theory. Understanding usually was observed to be superior to speaking, with understanding equated to competence and speaking to performance. At more advanced levels, both understanding and speaking were viewed as performance.

McNeill's (1966) observations are somewhat similar.
Phonological production was viewed as preceding grammatical
comprehension which preceded grammatical production. An
example of this is the child who repeats a long sentence
but might not be able to understand or produce it. The
same child may understand a longer sentence but might not be
able to produce it. The research of Fraser, Bellugi, and
Brown (1963) parallels these findings.

The child's language development is greatly influenced
by two critical factors: 1) the ability to formulate and
grasp generalizations about the language system, and
2) the language model or models in the environment (Ruddell,
1974). Although early home environment plays a major role
in a child's language development, the teacher's language
and that of other children exert an influence on language
development.

Dailey and Neyman (1965) studied oral and written
facility and comprehension among children who had attended
kindergarten and those who had not. The kindergarten
youngsters composed the experimental group, and conclusions
showed that these children did significantly better in all
areas and demonstrated fewer oral language errors than the
other children did.

Further studies involving the factors of kindergarten
attendance and oral language include the research of Pender-
gast et al. (1966). In order to investigate the effect of
kindergarten on oral articulation of first grade children,

over 15,255 pupils were tested. Those children who had attended kindergarten did not appear to have fewer oral English errors when they entered the first grade than those children who did not attend kindergarten, and of the two-thirds of the children who did have some articulation problems and were not enrolled in speech therapy, kindergarten experience appeared to help reduce sound errors in the first grade.

Oral language skills served as a measure in Stanchfield's (1971) test of the effects of teaching prereading skills to kindergarteners. Results indicated that girls outperformed the boys in first language learning.

Among children of average intellectual ability, it is not unusual to find one child who does not seem to be performing at an expected level. Often this child is a boy. This is attributed to cultural expectation according to Ruddell (1974). Girls are expected to play passive games which are oriented to school life while boys are expected to be active.

Kagan (1964) found that girls tended to be more oriented to school activities and to perform better than boys at the elementary grades. On the other hand, Laney (1970) concluded that kindergarten males and females showed no differences in expressive vocabulary development in their first language.

Stanchfield's (1971) research also demonstrated that there are differences in achievement by ethnic groups. Children representing three ethnic groups were selected, all of which were attending kindergarten and represented a cross section of socioeconomic levels. Oral language skills were included as a measure in the testing and results showed that whites outperformed the other ethnic groups involved in the study.

Likewise, Laney (1970) observed the relation of expressive and comprehensive language to race and cultural background and concluded that these variables were related to the level of a child's language development.

Cohen and Klein (1968) demonstrated that language accuracy as measured by the ability to use communication skills increased with age in first language learners. In order to master the more complex elements of language, Piaget (1955) demonstrated that the normal child needs additional maturation time. Furthermore, Asher (1972) concluded after studying a population of three elementary grades to determine if task had any influence on the performance of various ages of children in oral English, that younger children's poor communication skills in the first language cannot be explained by limited explanation of the task demands.

Davis (1937) found that single children in a family developed language facility more rapidly than children with siblings, and that chidren with siblings developed language faster than twins did. Research by Gesell et al. (1940, 1946)

found similar results. Children who come from families with many brothers and sisters tended to talk later than those children who were single children. The children who were twins also tended to talk later than single children. A single child in a family tended to develop oral English abilities earlier than those children who had siblings because of the greater opportunity and need to interact with adults. The same was found of children who were the first born in most families.

Second Language Learning

The degree of second language learning is dependent on the time at which it is introduced as well as the manner in which it is presented (Smith, 1971). If the second language is learned at the same time the first language is learned, acquisition does not differ from that of the first. However, when the second language is acquired in another context, the learner does not go through the first language acquisition process (Saville-Troike, 1973b).

Smith (1971) observed that second language is learned by a combination of presentation, explanation, repetition, and transfer. Second language learning is an inferred process, building up rule by rule while first language learning permits "trial and error" learning. The setting for second language acquisition generally minimizes possibilities of errors, in an effort to develop the competence of a full native speaker (Cook, 1971).

Jakobovits (1970) found mastery of a second language to be based on a good grounding in the first language. He supports the age of four or five years as an optimum time to acquire a second language. At this time, an individual's cognitive development is at a later and more advanced stage, he is in possession of the grammatical structure of a language which may facilitate acquisition of another language through transfer, and he possesses concepts and meanings in the first language.

Penfield's (1960, 1965) research substantiated that second language learning is a function of brain flexibility. Up until the age of twelve or puberty, the uncommitted part of the brain can become involved in language learning. Ervin-Tripp's (1968) work found that second language learning in children up to the age of eleven years is based on the sound of the language while adults based such learning on language sense. Furthermore, foreign accent was observed as being directly related to the age at which the second language was introduced, the accent being more pronounced after age twelve (Lenneberg, 1967).

All physiologically normal children are born with the capacity to produce any sound used in any language; however, with age, the flexibility is lost. "Foreign sounds" are not heard as such; the learner has been conditioned not to hear through previous experience with his own language.

Problems in phonology, grammar, and vocabulary are a tendency as a result of one's previous first language

experiences. These problems of perception in relation to
the use of second language which reflect the first language
habits are referred to as "linguistic interference." Many
interference problems can be predicted through a contrastive
analysis of the languages involved (Saville-Troike, 1973b).

As a result of linguistic interference, some
psychologists propose that simply learning two languages
at the same time may hinder a child's intellectual develop-
ment; that the impairment of intellectual functioning arises
in the non-English-speaking child solely from the child's
using, or being asked to use, two languages; that learning
two languages at the same time may lead to use of a smaller
vocabulary, simpler sentences, confused word order, misuse
of negatives, misuse of idiomatic expressions, and the use
of literal translations (Smith, 1949; and Darcy, 1963).

Darcy's (1963) review of the literature relating
bilingualism and intelligence showed that a child's intellec-
tual development is often hindered by his use of two
languages. Also intellectual functioning as measured by
standardized tests appears to be impaired. The children
who come to school speaking another language use confused
word order, misuse negatives and idiomatic expressions, and
use, at times, literal translations. Scores were also low
on intelligence tests. The scoring on the intelligence
tests tended to be correlated to their English language
performances.

Young Spanish-speaking children in Arizona who were introduced to English-only language instruction before their Spanish was well-established made a variety of oral language mistakes in Spanish (Lynn, 1945). Abraham (1960) found that children who were given insufficient English-as-a-second language training performed one standard deviation below the national norm on standardized tests of mental ability.

Measuring Oral Language

According to the Encyclopedia of Educational Research (Ebel, 1969) there are three general methods of studying language: teaching (conditioning), observation, and testing.

Teaching Methods

One method of teaching is behavior modification (stimulus-response-reward). This method is used by Bereiter and Englemann (1966) in their early childhood program titled Distar. The participants in this program are conditioned to respond in a specific manner according to the directions given by their teacher.

Other examples of teaching methods (Smith, 1971) are methods used in foreign language teaching. The audio-lingual approach uses an aural-oral technique, "hear it-say it." Another method, total submersion, places the learner in the cultural environment of the new language generally prohibiting use of any other language except the

new one. Rote memorization is the technique of direct memo-
rization of grammar rules with stated examples.

Observation

Observation has served as a means of language study
in many research projects. Both N. Chomsky (1965) and
C. Chomsky (1969) used the method of eliciting speech from
youngsters by engaging children in informal conversation to
observe their language and to make generalizations about the
speech of their subjects.

Loban (1966) spent ten years observing children's
language which resulted in the development of Categories for
Tallying Problems in Oral Language as a means of assisting
teachers in identifying crucial and frequent oral language
deviations from standard English made by Negro and Caucasian
subjects at pre-school, primary, intermediate, and junior
high levels.

Allred (1970) elicited samples of free speech from
third grade Mexican American children with Spanish language
backgrounds in Colorado and did an analysis of errors in
English usage. The analysis of the language samples found
misuse of negatives and of common expressions as well as the
misuse of verb forms. These were defined as the effects of
language differences. From these findings, Allred recommended
further evaluation of the pupils' weaknesses though diagnosis
followed with an instructional plan based on the specific
items which are sources of difficulty.

Testing

Testing is the general method selected by most researchers in their studies of language. The results of testing, however, are of no benefit to the examiner or to the examinees unless the findings are used selectively. If not, testing becomes another means of labeling for failure. Selective use of test results warrants the use of the information to develop additional prescriptive procedures that give positive and special attention to identified problem areas.

The Gloria and David Beginning Language Tests (1958) were developed in Texas to assist in the identification of phonological and morphological elements that are difficult for primary youngsters whose speech differs from the recorded model. The instrument tests by the method of sentence repetition. After use by a considerable number of persons, a questionnaire was developed to accompany the test.

Natalicio and Williams (1972) constructed Questionnaire for Evaluations of Black Language Samples; Questionnaire for Evaluators of Mexican American Language Samples. These questionnaires serve as a means of evaluating oral language samples derived from the Gloria and David on a seven-point scale except for two binary (yes-no) items. Reliability was established by identifying experts specializing in dialect study who used the questionnaire to evaluate a number of language samples (ten Mexican American samples and ten Black samples).

In 1968 Olquin constructed a non-technical teaching aid for teachers of bilingual children titled <u>Shuck Loves Chirley</u> which includes a diagnostic test of sentence repetitions. This instrument has been available through the California Public Schools. The materials were developed to assist teachers in the identification of sounds which the child cannot hear.

The <u>Linguistic Capacity Index</u> developed in 1964 by Manning and Brengleman (Fagan, 1975) was developed as a measure of English language readiness in grouping native Spanish-speaking pupils for English language instruction at the primary level. The index includes three sections: vocabulary recognition, contrastive phonology, and contrastive grammar. Vocabulary Recognition measures recognition of verb, noun, preposition, and adjective forms. Contrastive Phonology measures ability to discriminate sounds of pairs of words. Contrastive Grammar measures understanding of English function words, word order, and inflectional constructions that differ from Spanish constructions. The test has been used by the developers with over 167 subjects. In addition, it was administered to 300 kindergarten children in U.S.O.E. Project 2821 and to more than 2400 first graders in Cooperative Research Reading Projects 2648 and 2734.

The <u>Bilingual Syntax Measure</u> (Burt, Dulay, and Chávez, 1975) was developed to measure children's oral proficiency

in English and/or Spanish grammatical structures by using natural speech as a basis for making judgments. This instrument is designed specifically for children ages four to nine years.

The instruments and techniques of studying language that are described here are a sampling of the types of materials that have been available for oral language assessment, some of which are specifically for BBE. The researcher has selected the method of testing to study oral language, more specifically, the testing method referred to as sentence repetition task.

Conclusions

The literature relating to first and second language acquisition indicates that many factors affect oral English language ability. The factor of intelligence is effected by the timing of and the preparation for second language learning (Darcy, 1963;   Abraham, 1970). Second language learning can hinder intellectual development (Smith, 1949).

Success in second language acquisition is dependent on age (Lynn, 1945; Penfield, 1960 and 1964; and Lenneberg, 1967), just as first language acquisition is a function of age (Piaget, 1955; Ervin-Tripp Miller, 1964; Cohen and Klein, 1968). Saville-Troike (1973b) also supports the concept that all language is learned in stages. Smith (1971) demonstrates that the manner of second language presentation affects its acquisition.

Stanchfield (1971) and Laney (1970) correlated cultural and ethnic factors to language development. In addition, Stanchfield, Ruddell (1974), and Kagan (1964) demonstrated that young girls outperformed boys of the same age while Laney (1970) found no differences.

Davis (1937) and Gesell (1940 and 1946) reported that the number of siblings in the child's family affects oral language development.

Dailey and Neyman (1965) identified kindergarten attendance as being positively correlated with the number of oral language errors made. On the other hand, Pendergast (1966) found the opposite to be true.

Knowledge of some of the effects of these factors led to the development of the previously stated hypotheses. The past research has either supported or questioned the extent to which there is a relationship of these factors to the acquisition of oral English language, particularly the oral English of children whose native language is not English.

The next chapter will describe the design of this study as well as present information about the instrumentation, the subjects, and the data collected in carrying out the study.

CHAPTER III

PRESENTATION OF THE DATA

The teachers and staff of Colorado bilingual bicultural
education (BBE) programs need reliable tools to assist them
in the assessment of the abilities of the students they serve
so that students may receive immediate assistance in acquiring
oral English language skills. The purpose of this study was
to develop such an instrument and to determine the relation-
ships between scores on this instrument with seven identified
variables: 1) intelligence, 2) age of the child, 3) the
language spoken in the child's home, 4) the ethnicity of the
child, 5) the number of siblings in the child's family,
6) kindergarten attendance, and 7) the sex of the child.

The Sample Population

The sample population in this study consisted of
seventy-eight BBE first graders who were participants during
the academic year 1974-75, in three Colorado BBE programs:
one in northern Colorado, one in south-central Colorado, and
one just south of the Denver area. Of the programs selected,
five schools were used representing populations in rural,
urban, and semi-urban settings, all of which reflected the
same regional dialect usage.

25

Permission to work with youngsters from BBE programs was gained through contacts suggested by the BBE liaison with the Colorado State Department of Education.

Information other than test scores regarding the subjects was made available to the researcher from the schools' records and through teacher interviews.

Age

The age of each child in the sample was obtained by using the dates of birth from the school records and calculating the age of the child in months to the date of testing. The age distributions in months of the subjects who participated in the study are in Table 1. The ages ranged from 79 months to 111 months with a mean of 86.6 and a standard deviation of 5.35.

Table 1

MEAN AND STANDARD DEVIATION OF THE AGE OF SUBJECTS

	Mean	S. D.	Range
N = 78	86.6	5.35	79-111 months

Language Spoken in the Home

The language spoken in the home was determined by the teachers of each of the subjects based on their knowledge of the child's home and the teacher's interaction with the family

of the subject. Only speakers of the languages Spanish and
English were considered. Of the total population, 9 of the
boys and 12 of the girls were native speakers of Spanish.
Twenty-three boys and 34 girls were native speakers of
English.

Ethnicity of the Child

Ethnicity was used to refer to the ethnic representation
of the child. The subject was classified by the teacher of
each child as being a) non-Anglo, or b) Anglo. Among the
participants of this study, 19 boys were non-Anglo and 30
girls were non-Anglo. Thirteen boys and 16 girls were Anglo.

Number of Siblings in Child's Family

If school records did not carry information regarding
the number of siblings in the family, the child was asked
and the number was then verified by the classroom teacher.
The number of siblings in the homes of the sample population
ranged from zero to 12.

Kindergarten Attendance

Kindergarten attendance was determined by the fact
that a subject had attended kindergarten for any length of
time prior to entering first grade. In the sample population,
75 attended kindergarten and 3 did not.

Sex of the Child

The sex of the child was noted at the testing session.

Included in the study were 32 boys and 46 girls making a total of 78 participating in the study.

The Testing Procedures

Bass Sentence Repetition Task (BSRT)

Samples of the participants' oral English language were collected on cassette tapes using the BSRT developed by the researcher (see Appendix B) and audiotape recorded by a person with a regional English dialect that the children were accustomed to hearing. The seventeen sentences constructed for the BSRT reflected the specific linguistic features identified as being significantly English as the result of the contrastive analysis of English and Spanish according to the following (Politzer and Stanback, 1961; Shane, 1967; Zintz, 1969). Persons knowledgeable of the field were also consulted and found to be helpful (see Appendix D).

Contrastive Analysis of Various Selected English and Spanish Language Properties

Sounds

Spanish	English
|ĉ| palatal-affricate-voiceless	|ĉ| <u>ch</u>urch
no equivalence	|ŝ| <u>sh</u>oe
|b| bilibial-stop-voiced |ƀ| bilibial-fricative-voiced	|b| <u>b</u>oy, <u>b</u>uy, <u>b</u>erry

Sounds	English
no distinction from the b	|v| <u>v</u>ery
only one labiodental-fricative f	labiodental-fricative-voiceless
none	|θ| <u>th</u>ick dental-fricative-voiceless
none	|ð| ra<u>th</u>er dental-fricative-voiced
|ɭɭ| alveolar-lateral-voiced	none
none	glottal stops
nonɘ	|ẑ| deci<u>si</u>on

Structures

Spanish	English
All verbs are inflected (example: The dog run)	"S" as a part of present (example: The dog runs)
Adjectives usually follow the noun (example: The man big)	Adjectives before the noun (example: The big man)
Use of reflexive in many cases (example: I put myself to sleep)	No separation of certain verbs (example: I go to sleep)
Use of no and double negation (example: Juan no go home; No go: I don't want that, not never ever)	Seldom use of double negation (example: Juan did not go home. Don't go! I don't want that)
No auxiliaries used (example: He works? Works my mother?)	Use of auxiliaries (example: Does he work? Does my mother work?)

Spanish	English

Use of "to have" to express English "to be"
  (example: I have seven years; I have hunger; I have thirst)
	Use of "to be"
	  (example: I am seven years old; I am hungry; I am thirsty)

The use of gender for nouns
  (example: My car she goes)
	Nouns do not have gender
	  (example: My car goes)

Tendency to translate idiomatic phrases
  (example: my watch he walks; the bus leaves me; the window gives to the street)
	Phrases express differently
	  (example: my watch runs; I missed the bus; the window faces the street)

It should be understood that the BSRT is not a normed instrument but is reflective of standard language knowledge. The BSRT is designed to aid in determining whether the child is repeating the sentences as given or whether the child is restructuring the sentences (i.e., changing to a structure that is not acceptable as equivalent to that which is presented).

This BSRT was constructed to assess use of the specific linguistic features of phonology and syntax. For purposes of scoring, the sentences that were constructed to assess knowledge of phonology were scored as one category labeled English pronunciation and those constructed to assess English syntax were scored as another category labeled English structure. Therefore, two scores were given for this test.

Pilot Testing of the BSRT

The BSRT developed for this study was pilot tested in March, 1975, by the researcher. The testing involved a group

of 24 children representing a BBE program in the Northern
Colorado area. The children were first graders and were
selected randomly from the children in the BBE program.

The BSRT was administered individually to each of the
examinees by the researcher as was the PPVT.

The purpose of the pilot test was twofold: 1) to
familiarize the researcher with the procedure established for
the administration and scoring of the BSRT, and 2) to
determine if the sentences selected for the BSRT were
functional to provide data appropriate for assessing oral
English phonology and syntax.

The analysis of the language samples derived from
pilot testing of the BSRT was done three times by the re-
searcher according to the rules for grading (see Appendix B).

Peabody Picture Vocabulary Test (PPVT)

The PPVT is a standard test designed to provide an
estimate of a subject's verbal intelligence through measur-
ing his listening vocabulary (Dunn, 1965). It is ad-
ministered individually to examinees. Each examinee is
asked to select the illustration from a set of four that
represents the word given orally by the examiner. According
to the test manual (Dunn, 1965), correlations ranged from
a low of 0.67 at the six year level to a high of 0.84 at
the 17 and 18 year levels, with a median of 0.77 as the
resulting coefficients of equivalence for raw scores and
standard errors of measurement for IQs.

The researcher was aware of available data which
indicate that the PPVT has elements of cultural bias against
bilingual children (Hickey, 1972), but for purposes of this
study, this instrument seemed to be about as effective as
any available.

The Test Data

Bass Sentence Repetition Task (BSRT)

All BSRT's administered for this study were done so
by the researcher. Scoring of the data from the BSRT's
was done by a group of three persons who met specified
qualifications as developed by the researcher to provide
for inter-rater reliability (see Appendix C) and in accor-
dance with the rules set for their interpretation (see
Appendix B) which reflected the contrastive analysis of
English and Spanish. An average of the scores of the three
resource persons who graded each part of the test was com-
puted. Each child received a score on pronunciation
(phonology) and a score on structure (syntax).

Table 2

MEAN AND STANDARD DEVIATION ON BSRT:
PRONUNCIATION AND STRUCTURE

	Pronunciation			Structure		
	Mean	S. D.	Range	Mean	S. D.	Range
N = 78	16.6	2.78	8-20	8.45	1.47	1-10

The scores for pronunciation ranged from 8 to 20 for the sample with a mean of 16.6 and standard deviation of 2.78. The scores for structure ranged from 1 to 10 with a mean of 8.4 and standard deviation of 1.47 (see Table 2).

Peabody Picture Vocabulary Test (PPVT)

The PPVT was administered and scored by the researcher. Table 3 shows the deviation of intelligence scores for the subjects participating in the study.

Table 3

MEAN AND STANDARD DEVIATION ON PPVT
OF SUBJECTS IN BBE

	MEAN	S. D.	RANGE
N = 78	92.7	15.1	26-116

Note that the range of scores was from 26 to 116, more specifically, the girls ranged from 26 to 114 and the boys from 67 to 116 with a mean of 92.7 and standard deviation of 15.1.

The details of the data analyses and results will be found in Chapter 4.

CHAPTER IV

STATISTICAL ANALYSES OF THE DATA

This chapter includes the analyses of data collected
for establishing reliability of the Bass Sentence Repetition
Task (BSRT) developed by the researcher and the relationship
of the scores on the BSRT and the stated hypotheses. (Statis-
tical analyses of the data collected in this study were made
by the use of the computer system at the University of
Northern Colorado, Greeley.)

Reliability of the Bass Sentence
Repetition Task

The pupils used in this study were first graders who
were participants in Colorado bilingual bicultural education
(BBE) programs during the school year 1974-75. Seventy-
eight subjects were selected randomly from those attending
such programs.

Each subject was tested individually in an area re-
moved from his regular classroom setting to limit external
noises during the recording of language samples. The BSRT
was administered to assess the oral English phonology and
syntax of the pupils and the Peabody Picture Vocabulary Test
(PPVT) was administered as a measure of intelligence. Other
information regarding the participants in the study was

34

obtained from school records and conferences with teachers,
i.e., the age of the child, the language spoken in the home,
the ethnicity of the child, the number of siblings in the
child's family, kindergarten attendance, and the sex of the
child. These served as the independent variables of the
study. The list of variables and their abbreviations as
used in referring to them are found in Table 4.

The Kuder-Richardson Formula 21 (Thorndike and Hagen,
1955) was used to estimate the reliability of the BSRT.
The formula was run for each part of the BSRT, the pronun-
ciation (phonology) section and the structure (syntax)
section. The coefficients were .71 and .49 respectively,
based upon the means for three raters.

$$r_{11} = \frac{n}{n-1} \left[1 - \frac{M_t \left(1 - \frac{M_t}{n}\right)}{d_t^2} \right]$$

Since what was finally used was the combined judgments
of three raters, this had the effect of tripling the length
of a test, using the Spearman-Brown Formula (Thorndike and
Hagen, 1955).

$$R = \frac{nr}{1 + (n-1)r}$$

Inter-rater Reliability

Table 5 lists the inter-rater means and standard devia-
tions which were used to derive the inter-rater reliability
(see Table 6) of the scorers of the BSRT total scores for
pronunciation and structure. The Pearson correlation

Table 4

LIST OF VARIABLES

Number	Variable	Abbreviation
1	Intelligence	IQ
2	Age in months	Age
3a	Spanish as home language	Span
3b	English as home language	Eng
4a	Non-Anglo representative	NA
4b	Anglo representative	A
5	Number of siblings in child's family	Sib
6	Kindergarten attendance	K
7	Sex of the child	Sex

Table 5

INTER-RATER MEANS AND STANDARD DEVIATION

Scorers	Pronunciation		Structure	
	Mean	S. D.	Mean	S. D.
1	16.449	3.049	8.321	1.540
2	16.603	2.866	8.628	1.594
3	17.077	2.800	8.333	1.525

Table 6

INTER-RATER RELIABILITY OF THE SCORERS

Scorers	Pronunciation			Structure		
	1	2	3	1	2	3
1		.937	.895		.863	.757
2	.937		.890	.863		.800
3	.895	.890		.757	.800	

coefficients ranged from .937 to .890 for the pronunciation
scores and from .863 to .757 for the structures scores.
These would fall within the 95 percent confidence intervals
for the estimated reliabilities reported above. With a
total subject population of 78, these coefficients are judged
adequate for this study. This means that the standard errors
of measurement are 0.8 and 0.6 respectively. The 95 per-
cent confidence interval for an individual score would be
the score plus or minus 1.6 for pronunciation and plus or
minus 1.2 for structure.

<u>Relationship of Scores on the BSRT and Selected</u>
<u>Variables</u>

In order to determine the relationship of the scores
on the BSRT and the selected variables--intelligence, age
in months, language spoken in the home, ethnicity of the
child, number of siblings in child's family, kindergarten
attendance, and sex of the child--an average of the scores
of the three resource persons who graded the language samples
was computed. Then, a correlation of the average score of
each child was made for each section of the BSRT, pronun-
ciation (phonology) and structure (syntax), with each
variable that was identified as having some relation to oral
English. Table 7 indicates the results of these correlations.
With 78 subjects a correlation above .23 or below -.23 would
be significant although correlations below -.30 would tend
to be trivial. The correlation coefficients ranged from a

Table 7

CORRELATION OF VARIABLES TO BSRT SCORE MEANS

		Pronunciation	Structure
1	IQ	0.675**	0.473**
2	Age	-0.278*	-0.130
3a	Span	-0.549**	-0.342**
3b	Eng	0.549**	0.342**
4a	NA	-0.354**	-0.180
4b	A	0.354**	0.180
5	Sib	-0.184	0.093
6	K	0.308**	0.468**
7	Sex	-0.143	-0.243*

 * Significant at .05 level with 75 degrees of
   freedom

** Significant at .01 level with 75 degrees of
   freedom

positive 0.675 showing a fairly positive relation between
the IQ variable and the pronunciation score on the BSRT to
a negative correlation of -0.549 showing that when Spanish
is spoken in the home there is an inverse relation to the
score on English pronunciation on the BSRT. The highest
correlation of the structure score correlates 0.473.

Table 8 shows the interrelations of the predictor variables.

Data and Hypotheses Relationships

The following relates the data interpretation in terms of the stated hypotheses.

Hypothesis 1: There is no relationship between the scores on the BSRT and the IQ score on the PPVT.

The correlation analysis shows that there is a positive and significant relationship between the scores on the BSRT and the PPVT. This relationship holds true for oral English structure and English pronunciation as measured by the BSRT. Therefore, Hypothesis 1 is rejected.

Hypothesis 2: There is no relationship between the scores on the BSRT and the age of the child.

The variable of age correlates inversely with pronunciation scores on the BSRT (-0.278) at the .05 level. The correlation for structure (-.13) is not significant. Hypothesis 2 is rejected for pronunciation only.

Hypothesis 3: There is no relationship between the scores on the BSRT and the language (a. Spanish, or b. English) spoken in the home.

Language spoken in the home is related to oral English as measured by the BSRT pronunciation score. As would be expected, variable 3b Eng showed direct relationship (.549) to BSRT scores while variable 3a Span showed an inverse relationship (-0.549).

Table 8

CORRELATION MATRIX OF PREDICTOR VARIABLES

Variable with computer number

		1	2	3a	3b	4a	4b	5	6	7
IQ	1									
Age	2	-0.293*								
Span	3a	-0.450**	0.102							
Eng	3b	0.450**	-0.102	-1.000						
NA	4a	-0.279*	0.251*	0.467*	-0.467**					
A	4b	0.279*	-0.251*	-0.467*	0.467**	-1.00				
Sib	5	-0.294*	0.222	0.045	-0.045	0.114	-0.114			
K	6	0.262*	0.009	-0.330**	0.330**	-0.154	0.154	-0.066		
Sex	7	0.010	-0.044	0.007	-0.007	-0.093	0.093	-0.149	0.234*	

* Significant at .05 level

** Significant at .01 level

The BSRT score for structure showed a lower but still significant correlation with the language spoken in the home. Variable 3b Eng showed direct relationship (.342) and 3a Span was inverse (-0.342). Hypothesis 3 is rejected for both BSRT scores.

> Hypothesis 4: There is no relationship between the scores on the BSRT and the ethnicity (a. Non-Anglo, or b. Anglo) of a child.

Ethnicity did show a relationship to the scores on the BSRT. Anglo representation showed a positive correlation (.354) and non-Anglo representation showed an inverse correlation (-0.354) for BSRT score on pronunciation. Neither of the observed relationships 4a (-0.18) or 4b (.18) were significant at the .05 level for structure. Hypothesis 4 is rejected for pronunciation but not for structure.

> Hypothesis 5: There is no relationship between the scores on the BSRT and the number of siblings in the family.

The correlation analysis of the BSRT score for pronunciation and the variable Sib, showed that there was no significant relationship (-0.184) between the two. Likewise, the comparison with the BSRT score for structure showed a nonsignificant relationship (.093). In this case, Hypothesis 5, as stated, was not rejected.

> Hypothesis 6: There is no relationship between the scores on the BSRT and kindergarten attendance.

The variable of kindergarten attendance correlated with pronunciation (.308) and with structure (.468). Both are.

significant at the .01 level. However, since only three
children had not gone to kindergarten, no conclusion will be
drawn from these results.

> Hypothesis 7: There is no relationship between the
> scores on the BSRT and the sex of the
> child.

The pronunciation score on the BSRT showed no signifi-
cant relationsnip (-0.143) with whether the child was a boy
or girl, but the structure score did (-0.243). Hypothesis
7 was not rejected for pronunciation, but it was rejected
for structure.

Regression Analysis

In addition to the simple correlation analysis,
multiple linear regression (Kerlinger and Pedhazur, 1973)
was used to determine the unique contribution of different
sets of the variables to the prediction of English language
pronunciation and oral English language structure. The
contribution of a set of variables to prediction may be
measured by the square of the multiple correlation co-
efficients (RSQ), one obtained for a regression model in
which all predictors are used, called the full model (FM),
and the other obtained for a regression or restricted model
(RM). The multiple correlation coefficients for the RM can
never be larger than the multiple correlation coefficients
for the FM. The difference between the two coefficients can
be tested for statistical signficance with the variance
ratio test.

The knowledge of which variables make a contribution
to the prediction of oral English pronunciation and structure
would indicate which variables furnish information in
determining the performance of similar first grade children
in Colorado BBE programs.

Because the variables used in this study are
significantly correlated with each other, it is possible
that conclusions based upon simple Pearson product moment
correlations may be suspect. A more rigorous test of the
relationship of these variables to the pronunciation and
structure scores is through the use of multiple linear re-
gression.

Table 9 lists the means of the predictor variables
as well as gives the standard deviations of each of these
variables. This information shows that the mean IQ of the
test population was 92.7 with a standard deviation of 15.1
which is considered a normal deviation for the instrument.
The average for the variable of Age was 86.6 months which
means that the average subject was about seven years and
two months old at the time of testing. Each subject had an
average of 2.87 siblings. The other variables were binary
coded.

If two highly correlated predictors occur in a re-
gression system and one is deleted in order to determine its
unique contribution, there is little or no drop in the square
of the multiple correlation coefficient from the full model

Table 9

MEANS AND STANDARD DEVIATIONS (N=78)
OF PREDICTOR VARIABLES

Variable		Mean	S. D.
1	IQ	92.7	15.1
2	Age	86.6	5.35
3a	Span	0.269	0.444
3b	Eng	0.731	0.444
4a	NA	0.628	0.483
4b	A	0.372	0.483
5	Sib	2.87	2.39
6	K	0.962	0.192
7	Sex	0.423	0.494
Mean of pronunciation scores		16.61	2.78
Mean of structure scores		8.45	1.47

to the restricted model. This may be tested by this formula for significance of a difference between multiple Rs (Guilford, 1965).

$$F = \frac{(R_F^2 - R_R^2)(N-m_1-1)}{(1 - R_F^2)(m_1 - m_2)}$$

R_F = multiple R with larger number of independent variables

R_R = multiple R with one or more variables omitted

m_1 = larger number of independent variables

m_2 = smaller number of independent variables

N = number of subjects

df_1 = $m_1 - m_2$

df_2 = $(N-m_1-1)$

Closely related variables were grouped. These are shown in Table 10. Where use of the above formula gives an F with a probability above .05, unnecessary information need not be collected. As a result Table 11 and Table 12 were made as a sequential guide for retaining or dropping variables.

The top blocks of Tables 11 and 12 indicate that all variables (1-7) were used in the full model (Schmid and Reed, 1966). The next blocks indicate which predictor variables represent the sets to which multiple regression techniques were applied. The RSQ for each of these blocks could be compared with the RSQ of the FM. A large difference at or below the .05 level would indicate that the set is making

Table 10

GROUPING OF PREDICTOR VARIABLES FOR REGRESSION ANALYSIS

Groups		Variable Number
I	Spanish Language Home (Span)	3a
	English Language Home (Eng)	3b
	Non-Anglo Representative (NA)	4a
	Anglo Representative (A)	4b
II	Age in Months (Age)	2
	Number of Siblings in Child's Family (Sib)	5
	Sex of the Child (Sex)	7
III	Intelligence (IQ)	1
	Experience in Kindergarten (K)	6

an unique contribution to the prediction of the phenomena. A small or zero drop indicates that any relationship found is not significant.

Interpretation of the Regression Analysis

The regression of the criterion, oral English pronunciation and structure, on all of the variables had RSQ's of .5692 (Table 11) and .4303 (Table 12) respectively. The square root of these values is .7545 and .6560 respectively. This is higher than the best individual variable for structure, which is IQ. Each of these variables correlated at 0.675 and 0.473 respectively.

The restricted model, FM 3a, 3b, 4a, and 4b for pronunciation, (Table 11) had an RSQ of .4988. The observed drop is .5692−.4988=.0704 and is statistically significant; therefore, this difference indicates that this set of variables (Span, Eng, NA, A) makes an unique contribution to the prediction of oral English pronunciation. From this set, the restricted models FM 3a, 3b and FM 4a, 4b were noted which indicate that language (3) and ethnicity (4) as a group of variables contributed to the prediction but that one cannot look at the individual language or ethnicity as a predictor.

The second group which formed the restricted model FM 2, 5, and 7 for pronunciation, had an RSQ of .5412. No significant drop is noted between this model containing the variables Age (2), Sib (5), and Sex (7), and the FM

Table 11

REGRESSION ANALYSIS OF VARIABLES FOR PRONUNCIATION

Full Model Pronunciation
(all variables)
RSQ = .5692

FM- 3a, 3b, 4a, 4b
RSQ = .4988
F = -2.78
P = .0331

FM- 2, 5, 7
RSQ = .5412

FM -1, 6
RSQ = .3977
F = 13.53
P = .0001

FM- 3a, 3b
RSQ = .5245

FM- 4a, 4b
RSQ = .5651

FM- 2
RSQ = .5619

FM- 5
RSQ = .5680

FM- 1,068
RSQ = .4
F = 25.63
P < .0001

FM- 6
RSQ = .5676

FM- 7
RSQ = .5490

FM- 3a
RSQ = .5692

FM- 3b
RSQ = .5692

FM- 4a
RSQ = .5692

FM- 4b
RSQ = .5692
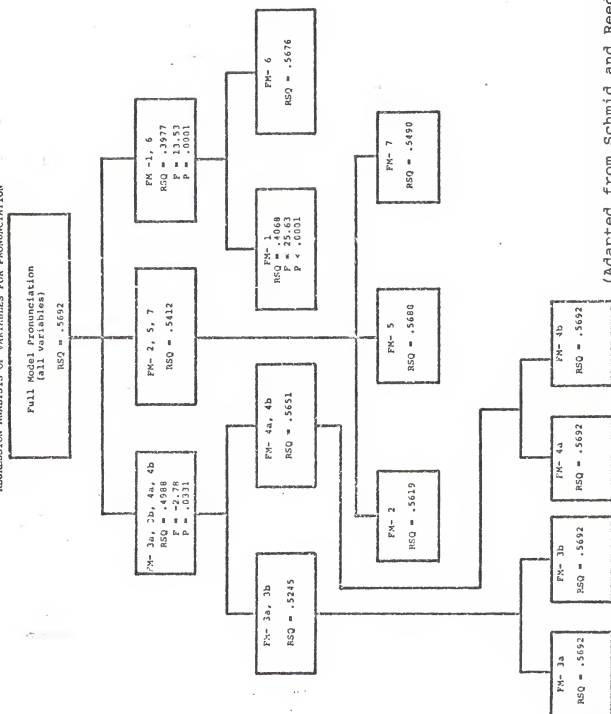
(Adapted from Schmid and Reed, 1966)

Table 12

REGRESSION ANALYSIS OF VARIABLES FOR STRUCTURE


```
┌─────────────────────┐
│ Full Model Structure│
│   (all variables)   │
│                     │
│   RSQ = .4303       │
└─────────────────────┘
```

FM- 1, 6
RSQ = .1968
F = 13.43
P = .0001

FM- 6
RSQ = .3440
F = 10.30
P = .0024

FM- 1
RSQ = .3145

FM- 7
RSQ = .4125

FM- 2, 5, 7
RSQ = .3542
F = 3.043
P = .0347

FM- 5
RSQ = .3836
F = 5.57
P = .02

FM- 3a, 3b, 4a, 4b
RSQ = .4282

FM- 4a, 4b
RSQ = .4301

FM- 2
RSQ = .4272

FM- 3a, 3b
RSQ = .4292

FM- 4b
RSQ = .4303

FM- 4a
RSQ = .4303

FM- 3b
RSQ = .4303

FM- 3a
RSQ = .4303
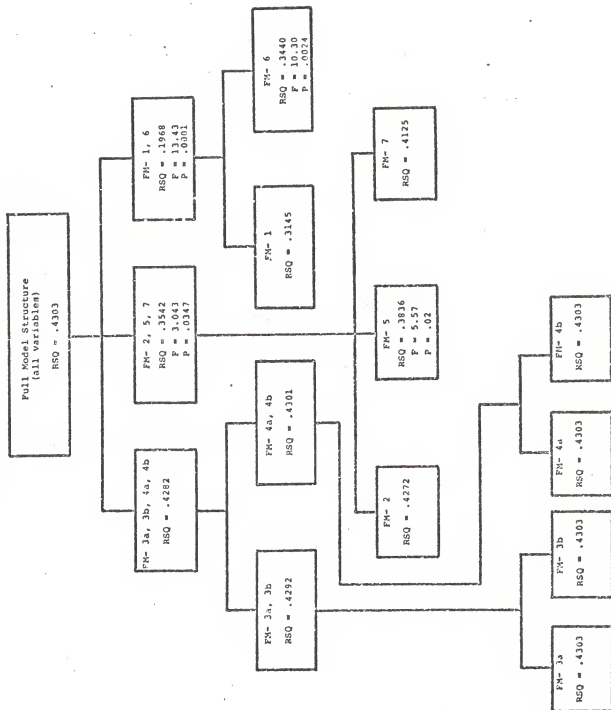
(Adapted from Schmid and Reed, 1966)

containing all of the predictor variables.

Group III, FM 1 and 6 for pronunciation, had an RSQ of .3977. The observed drop is .5692-.3977=.1715 and this is significant at the .05 level. This indicates that Group III contributes to the prediction of oral English pronunciation. Further analysis of the model shows that IQ (1) has an RSQ of .4068 and K (6) has an RSQ of .5676. The drop observed in variable 1 is significant (.5692-.4068= .1624), while no significant drop is noted in variable 6 alone. IQ as measured by the PPVT is a contributing variable in the prediction of oral English pronunciation.

Applying the same technique to structure (Table 12), Group I FM 3a, 3b, 4a, and 4b has an RSQ of .4282 and no significant drop is noted between this RSQ and the RSQ (.4303) of the FM. Therefore, the variables Span (3a), Eng (3b), NA (4a), and A (4b) as a group are not contributing factors to the prediction of oral English structure.

Group II, FM 2, 5, and 7 for structure, had an RSQ of .3542. The observed drop, .4303-.3542=.0761, is statistically significant and further analysis was done. The restricted models, FM 2, FM 5, and FM 7, showed RSQs of .4272, .3836, and .4125 respectively, none of which show statistically significant drops. As a group, these variables Age (2), Sib (5), and Sex (7) are of use in the prediction of oral English structure. Variables Age (2) and Sex (7) do not make significant contributions, but the variable

Sib (5) is significant when the RSQ of .3836 is rounded to
.38 (.4303-.38=.05).

The restricted model, FM 1,6 for structure, had an
RSQ of .1968 which gave a drop of .4303-.1968=.2335. This
drop is significant and warrants further analysis. The
resulting models, FM 1 and FM 6 had RSQs of .3145 and .3440.
The models showed drops of .1158 and .0863, each of which is
statistically significant. The conclusion is that IQ (1)
as measured by the PPVT, Sib (5), and K (6) are contributing
variables and are useful in the prediction of oral English
structure.

It may seem that the seven predictor variables can
be used to predict the English language of children in
Colorado BBE programs quite well, the square of the RSQ
being .5692 (pronunciation) and .4303 (structure). Further-
more some models having fewer variables than seven pre-
dictors also had a high prediction efficiency. Examples of
high prediction efficiency are FM Age (2), Sib (5), Sex (7)
for pronunciation and FM Span (3a), Eng (3b), NA (4a), and
A (4b) for structure. Considering these findings, a pre-
diction equation could be constructed for any group of pre-
dictor variables using the data of Tables 7 and 8.

Summary of Regression Analysis

As a result of the regression analysis the following
conclusions were made in reference to the stated hypotheses:

Hypothesis 1:   There is no relationship between the
                scores on the BSRT and intelligence
                as measured by the PPVT.

According to the findings of the regression analysis,

IQ as measured by the PPVT, has a significant relationship to

the scores on the BSRT, thereby, giving some predictability

of oral English language pronunciation and structure.   There-

fore, Hypothesis 1 was rejected at the .05 level of

significance.

Hypothesis 2:   There is no relationship between the
                scores on the BSRT and the age of the
                child.

There was an age range from 79 to 111 months and a

standard deviation of 5.35 months among the subjects.   With

this somewhat restricted range, regression analysis showed

that no significant relationship exists between the scores

on the BSRT and the age of the child.   Hypothesis 2, there-

fore, was not rejected.

Hypothesis 3:   There is no relationship between the
                scores on the BSRT and the language
                (a.   Spanish, or b.   English) of the
                home.

Language of the home as a predictor did not have any

statistically significant relationship to the scores on the

BSRT.   However, when language of the home and ethnicity of

the child were grouped as predictors using regression

analysis, significant results were noted.   Hypothesis 3 as

stated is not rejected.

Hypothesis 4:   There is no relationship between the
                 scores on the BSRT and the ethnicity
                 (a. non-Anglo, or b. Anglo) of the
                 child.

Ethnicity as a separate variable had no relationship
to the scores on the BSRT. Hypothesis 4 was not rejected.

Hypothesis 5:   There is no relationship between the
                 scores on the BSRT and the number of
                 siblings in the child's family.

No significant relationship was observed between the
scores on the BSRT and the number of siblings in the child's
family. This variable Sib showed some predictability when
grouped with the child's age and sex using regression
analysis (and is a contributing factor when the RSQ value
is rounded). Nevertheless, Hypothesis 5 was retained even
though it was shown as indicating a relationship that was
significant.

Hypothesis 6:   There is no relationship between the
                 scores on the BSRT and kindergarten
                 attendance.

The regression analysis showed that no relationship
existed between the score for pronunciation on the BSRT and
the variable of kindergarten attendance. But a significant
relationship was noted between the BSRT score for structure
and kindergarten attendance. In this case, Hypothesis 6
was rejected for structure and not rejected for the BSRT pro-
nunciation score. However, as previously stated, since
only three children did not attend kindergarten, no
generalizations can be made as a result of this finding.

Hypothesis 7:   There is no relationship between the
scores on the BSRT and the sex of the
child.

The regression analysis showed no significant relation-
ship between the sex of the child and the scores on the BSRT.
Therefore, Hypothesis 7 was not rejected.

The ove all results of the correlation analysis and
the regression analysis showed a relationship between the
scores on the BSRT and most of the identified oral English
predictors. The variables of intelligence and language of
the home had the greatest direct relationship with the pro-
nunciation and structure scores on the BSRT according to
correlation analysis. The variable of ethnicity also had a
.01 level of significance in relation to the pronunciation
score on the BSRT.

Multiple regression analysis identified intelligence
as a significant single variable in predicting the BSRT
pronunciation score while the number of siblings in the
family was singly significant in its relationship to the
BSRT structure score along with intelligence.

Chapter V will summarize this study and make recommen-
dations for further research.

CHAPTER V

SUMMARY, RECOMMENDATIONS, AND DISCUSSION

Summary of the Study

The purpose of this study was to develop a reliable instrument that could be used by teachers and staff in Colorado to assist in the assessment of oral English language, particularly the structure (syntax) and the pronunciation (phonology) of first grade children in bilingual bicultural education (BBE), and to relate the scores of the instrument to seven variables: a) intelligence, b) the child's age, c) the language spoken in the home (Spanish or English), d) ethnicity (non-Anglo or Anglo), e) the number of siblings in the child's family, f) kindergarten attendance, and g) the sex of the child.

Seventy-eight subjects were identified for the study. These subjects were first graders who were participants in BBE programs in the state of Colorado during the school year 1974-75. The children were tested using the researcher-developed instrument, the Bass Sentence Repetition Task (BSRT), to determine knowledge of oral English pronunciation and structure and the Peabody Picture Vocabulary Test (PPVT) for testing ingelligence.

The Kuder-Richardson Formula 21 was applied to estimate the reliability of each section of the BSRT. The coefficient was .71 for pronunciation and .49 for structure. The combined judgments of three raters had the effect of tripling the length of the test. Applying the Spearman-Brown Formula to estimate a new reliability, a .88 coefficient for pronunciation and a .76 for structure were obtained.

Correlation analysis as well as multiple regression analysis were used to determine the relationships between the BSRT scores and the predictor variables.

The correlation analysis showed that the variables intelligence, language spoken in the home, and ethnicity were related to the BSRT pronunciation score at the .01 level of significance. The variables intelligence and language spoken in the home were significantly related to the BSRT structure score at the .01 level, while the sex variable was significantly related at the .05 level. No conclusion can be drawn about the relationship of the BSRT scores with kindergarten attendance because only three pupils in the sample did not attend kindergarten.

The method of multiple regression was used as a source of a more rigorous method of data analysis which can serve as a means of identifying the variables that significantly contribute to the prediction of certain phenomena, in this case, that of oral English pronunciation and structure.

A significant relationship was noted between the pronunciation score on the BSRT and the variable of intelligence as measured by the PPVT. Also the structure score on the BSRT was significantly related to the intelligence variable and to the number of siblings in the family (based on the rounded multiple correlation coefficient for the variable). Even though a significant relationship of the scores on the BSRT and the variable of kindergarten attendance was observed, no conclusions can be drawn because only three of the subjects did not attend kindergarten.

Multiple regression analysis also showed a statistically significant relationship between the scores on the pronunciation portion of the BSRT and the grouping of ethnicity and language variables; however, further analysis did not determine a relationship between the BSRT scores and individual languages or ethnic representations.

As a result of the regression analysis, the intelligence variable as measured by the PPVT is considered to be a contributing factor to the measure of oral English pronunciation and structure as measured by the BSRT. Furthermore, the correlation analysis showed that this variable is positively related. The number of siblings in the child's family (when the RSQ is rounded) is considered a contributing factor to the prediction of oral English structure as measured by the BSRT.

The established reliabilities for the BSRT are within acceptable limits for an instrument of this type. The BSRT,

therefore, is a reliable tool for assessing the oral English pronunciation and structure of first grade children in Colorado BBE programs. The statistically significant variables of intelligence as measured by the PPVT and the number of siblings in the child's family are contributing factors to predicting the oral English pronunciation and structure as measured by the BSRT.

The researcher does caution that correlation analyses do not indicate cause and effect relationships. The analyses used in this study only indicate the degree of relationship between the BSRT and the variables studied. For this reason, no conclusions about casuality were presented.

Recommendations

In view of the findings and the limitations of this study, the following recommendations are made:

1. The researcher recommends administration of the BSRT to first grade children in Colorado BBE programs as a quick assessment of oral English pronunciation (phonology) and structure (syntax). Furthermore, it could be tested for use in Spanish-English programs in other parts of the country.

2. The researcher recommends the development of BBE instructional materials which give special attention to the items in the BSRT.

3. Intelligence as measured by the PPVT when used selectively can assist in prediction of oral English pronunciation and structure as measured by the BSRT.

4. The information gathered in this study can be used as an example of how to devise a sentence repetition task for use with other language-different populations.

5. The researcher recommends the development of a reliable and valid tool for the measurement of the mental ability of youngsters in BBE which minimizes the factors of cultural and linguistic biases.

6. The researcher recommends the development of a sentence repetition task that takes into consideration the dialect differences of Spanish spoken in a given area for use in that area.

7. Data from this study can be used in pre-service and in-service education to prepare teachers for working in BBE programs. Also, the BSRT and instructions for administering and scoring it could be used in such educational programs.

BBE programs are increasing in number across the United States. With the growing concern for assuring that these programs are indeed meeting the needs of the populations they are designed to serve, research and development of materials are of utmost importance. The development of the BSRT is to be of specific service to the BBE programs of Colorado as well as BBE programs across the nation.

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APPENDIX A

LETTER FORMS FOR CONTACTING SCHOOLS

THE UNIVERSITY OF NORTHERN COLORADO
GREELEY, COLORADO 80639

February 28, 1975

Mr. Keller, Principal
Letford Elementary School
Johnstown, Colorado

Dear Mr. Keller:

This letter is to introduce Bernice Bass who is a doctoral
student at the University of Florida working under my
supervision here at the University of Northern Colorado to
complete work for a degree with emphasis in bilingual edu-
cation.

Ms. Bass is in the process of developing an instrument which
could be of assistance in the evaluation of oral English
language proficiency of young children of Mexican-American
descent. In the pilot testing of this instrument, Ms. Bass
has selected to work with youngsters of first grade level.

Your assistance in permitting Ms. Bass to work with youngsters
in your school is greatly appreciated.

Sincerely,

José Córdova
Assistant Professor
Elementary Education

UNIVERSITY OF FLORIDA
GAINESVILLE, FLORIDA

April 6, 1975

ADDRESS

Dear _____:

This letter is to introduce Bernice Bass who is a doctoral
student at the University of Florida working under my
direction to complete a degree with emphasis in bilingual
bicultural education.

Ms. Bass has developed an instrument which could be of
assistance in the assessment of oral English language of
young children, particularly those with language differences.
She has selected to work with first grade youngsters in
her research study to establish the reliability for the
instrument she has developed. This will require that she
work with individual children for approximately 15 to 20
minutes each. Your assistance in your program would be
greatly appreciated.

Ms. Bass will be contacting you within the next week.

Sincerely,

Ruthellen Crews
Professor of Education

APPENDIX B

BASS SENTENCE REPETITION TASK

BSRT

Entering Interview:

    1. Who are you? (What is your name?)
    2. How many brothers and sisters do you have?
    3. How old are you?

Repetitions:

    1. The girl sits on a chair.
    2. The girl asks the teacher a question.

      (You are a good listener--for reinforcement)

    3. The dog barks.
    4. The berries are ripe.
    5. The fruit is fresh.
    6. I think the apples are ready.
    7. Which apple would you choose?
    8. The children choose big apples.
    9. Shine my shoes.
   10. The sheep were sheered yesterday.
   11. The scissors are for cutting.
   12. Please make the decision.
   13. Choose the round puzzle.
   14. I go to sleep at night.
   15. I am thirsty, I'd rather have some water.
   16. The teacher's window faces my house.
   17. I don't want that.

Exit Interview:

    Thank you, I enjoyed playing this game with you.

Directions for Administering the BSRT:

1. Use two tape players--one for the recorded tape
    and one that will record the session.

2. Begin with the entering interview to gain the
    interest of the child.

3. Record the entering interview and then play it
    for the child.

4. Give the following instructions:

    a. We're going to play a little repeating game.

    b. I'll read something and I want you to repeat
        exactly what you hear, as you hear it.
        Remember, repeat what you hear exactly as
        you hear it.

5. Start the tape players.

6. Turn off the players after the session and
    excuse the child.

7. If the child does not seem to understand the
    directions, start the directions again from
    the beginning.

8. If necessary, give the directions to the child
    in Spanish, but the repetitions must be made
    in English.

Scoring Form for BSRT-1975   Grader _____

NAME OF CHILD _____   AGE _____

NUMBER OF SIBLINGS _____   DATE OF GRADING ____

PRONUNCIATION	STRUCTURE
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____
6. _____	6. _____
7. _____	7. _____
8. _____	8. _____
9. _____	9. _____
10. _____	10. _____
11. _____	11. _____
12. _____	12. _____
13. _____	13. _____
14. _____	14. _____
15. _____	15. _____
16. _____	16. _____
17. _____	17. _____

TOTAL _____   TOTAL _____

Corrections for the BSRT--1975

Instructions:

1. Grade each part separately.

    a. pronunciation

    b. structure

2. Record the name and other information from the recording on the grading form.

    a. Play first part of tape, record the answers.

    b. Make certain that all is recorded before beginning the analysis for grading.

    c. If any part of the recording is blurred or unintelligible, mark the space UN. If there is no response, mark the space NR.

3. Pronunciation: listen to one sentence at a time noting the pronunciation of the words as compared to the prepared model. The word indicated on the pronunciation correction sheet must be pronounced according to the model's sounding.

    a. If correct, mark 1 for each correct response; if incorrect, mark with "O."

    b. All scores for the pronunciation section should appear under the section so marked on the correction form.

    c. There is a total of 20 possible points.

4. Structure: listen to one sentence at a time noting the structure indicated on the structure correction sheet. The response must be exactly as given on the correction sheet.

    a. If correct, mark "1" point for each grouping. If the structure is not exactly as indicated, make written notes of the variation.

    b. There is a total of 10 possible points.

Corrections for the Pronunciation Section of the BSRT

1..............<u>ch</u>air

2...............tea<u>ch</u>er.........

3.

4.....<u>b</u>erries..............

5.........fre<u>sh</u>

6.....<u>th</u>ink.......

7. Whi<u>ch</u>...............<u>ch</u>oose?

8. ....<u>ch</u>ildren <u>ch</u>oose............

9. <u>Sh</u>ine..................

10.....<u>sh</u>eep..........<u>sh</u>eered........

11........sci<u>ss</u>ors.........<u>c</u>utting.

12..................deci<u>s</u>ion

13. <u>Ch</u>oose..............pu<u>zz</u>le.

14.

15...........<u>th</u>irsty........ra<u>th</u>er.......

16........tea<u>ch</u>er............

17.

Corrections for the Structure Section of the BSRT

1. girl sits
2. girl asks
3. dog barks
4. berries are ripe
5.
6.
7.
8. big apples
9.
10.
11.
12.
13. round puzzle
14. go to sleep
15. I am thirsty   or   I'm thirsty
16. window faces my house
17. don't want   or   do not want   or don't like

Subject Information Sheet--BSRT, 1975

NAME and NUMBER _____

Birthdate _____ Age in months _____

Number of siblings _____

Language of the home _____

IQ _____ Attended Kindergarten _____

Test date _____

Scores SRT

      Pronunciation _____ Structure _____

Comments:

Evaluation of Scores of BSRT - 1975

Pronunciation Section:

20--16   indicates that child has
          gained control of the given
          sound patterns

15--11   suggests item analysis to
          determine the child's needs

10--0   child should begin initial
          auditory program which
          emphasizes the sounds which
          are distinctly English in
          nature.

Structure Section:

10--7   indicates that child has
          gained control of the
          given language structures

7--5   suggests item analysis to
          determine the child's needs

4--0   child should begin with
          initial structure and
          pattern program.

APPENDIX C

RESOURCE PERSONS: QUALIFICATIONS
AND INFORMATION

Qualifications for Resource Persons:

1. Has worked with Colorado BBE programs for at least three years.

2. Is bilingual in Spanish and English as demonstrated by continued employment in a Spanish/English BBE program as a teacher or staff person.

3. Participates in the training sessions conducted by the researcher.

Training Sessions:

1. There will be two training sessions.

   a. The first will give background on the process of scoring SRT.

   b. The second session will allow practice in grading SRT using selected tapes from the pilot testing.

2. Upon completion of training, the resource persons will begin to score the tapes collected in the major study.

RESUME FORM

NAME _____ Alice Carolyn Aguayo de Leal _____

ADDRESS ___ 1616 27th Avenue Court; Greeley, Colorado 80631 __

EXPERIENCES IN COLORADO BILINGUAL PROGRAMS

     5 years--Johnstown Bilingual Program, Kindergarten

           level bilingual teacher

     1 year---Greeley Bilingual Programs, curriculum

           specialist

ADDITIONAL INFORMATION

    Consultant--Teaching in a Second Language

    Instructor--University level courses in bilingual

          education

    Curriculum development for oral language development

    Team member of Ad Hoc Team to recommend NEA position

       in regard to the Child Development Associate

       Consortium, Washington, D. C.

SIGNATURE--indicates intentions to participate in training
          sessions

RESUME FORM

NAME _____ Estella Anita Martínez de See _____

ADDRESS _____ Greeley, Colorado _____ 80631 _____

EXPERIENCES IN COLORADO BILINGUAL PROGRAMS

    5 years--Johnstown Bilingual Program

            1 year-English reading teacher, first grade
                bilingual classroom

            2 years-bilingual classrcom teacher, third
                grade

            1 year-bilingual classroom teacher, fifth
                grade

            1 year-bilingual classroom teacher, fifth,
                sixth, and seventh grades

ADDITIONAL INFORMATION

    Workshop and/or Conference Consultant
        Topics--Teaching Math Bilingually
                Bilingual-Bicultural Education
                Oral Language Curriculum for BBE

    Special consultant for Senate Joint Resolution 20,
        Bill for BBE-Colorado State Department of
        Education

    Developer--K-4 curriculum for bilingual-bicultural
        project

SIGNATURE--indicates intentions to participate in training
        sessions

RESUME FORM

NAME _____ Sheila Anne Towle _____

ADDRESS ___ 2124 6th Avenue, Greeley, Colorado _____

EXPERIENCES IN COLORADO BILINGUAL PROGRAMS

      4 years--Johnstown Bilingual Program

              2 years-kindergarten bilingual teacher

              2 years-second grade bilingual teacher

ADDITIONAL INFORMATION

      Secretary--Colorado Association for Bilingual
             Bicultural Education

      Assistant in developing elementary bilingual
             curriculum

      Member of evaluation team for elementary bi-
             lingual programs

SIGNATURE--indicates intentions to participate in training
          sessions

APPENDIX D

PERSONS KNOWLEDGEABLE OF LANGUAGE AND BBE

THE UNIVERSITY OF NORTHERN COLORADO
GREELEY, COLORADO 80639

March 14, 1975

Dr. Ruthelle.. Crews
University of Florida
Norman Hall - 190
Gainesville, Florida 32611

Dear Dr. Crews:

This is to affirm the fact that Bernice Bass has completed
an independent study under my direction in which she
developed an instrument that assesses the oral English
syntax and phonology of first grade children in bilingual
programs.

I believe this instrument has great potential for our
Colorado bilingual programs, particularly because it has
been modeled to focus upon the unique linguistic
differences of Colorado.

Sincerely yours,

José E. Córdova
Assistant Professor
of Elementary Education

COLORADO DEPARTMENT OF EDUCATION
DENVER, COLORADO

March 26, 1975

Dr. Ruthellen Crews
University of Florida
Norman Hall - 186A
Gainesville, Florida 32611

Dear Dr. Crews:

Ms. Bernice Bass has developed a measure that is appropriate
to Bilingual Programs in Colorado. She has worked with
various school personnel and school students and has been
given the support for her measure in regards to relevance.

The Sentence Repetition Task that Ms. Bass has developed
has been reviewed by our office. We feel that it provides
appropriate exercises in assessing students' linguistic
differences in the areas of phonology and syntax. The
analysis lends itself very much to giving teachers and
administrators information for bringing about proper tech-
niques in presenting concepts to children with linguistic
differences.

We are hoping that we can capitalize on the basic functions
of the SRT and that we can continue to use the expertise
that Ms. Bass possesses.

Sincerely,

Bernard Martínez
Bilingual Bicultural Education
Community Services Unit
892-2166

cc: Bernice Bass

COLORADO DEPARTMENT OF EDUCATION
DENVER, COLORADO

April 12, 1975

Ms. Bernice Bass
6905 Mariposa Street
Denver, Colorado

Dear Bernice:

Thank you for the opportunity to review the BASS-SRT.
This instrument, designed specifically to assess the
English oral language skills of primary students in
Colorado Bilingual/Bicultural Programs, is extremely
needed.

We, in the Colorado Department of Education, look for-
ward to the passage of legislation this year calling
for the design and implementation of Bilingual/Bicul-
tural Programs in school districts throughout our
state. A necessary aspect of local program design
might be addressed through the use of your instrument
in the identification of where students are with re-
spect to English oral language skills.

Please keep me informed of any new design features of
your instrument.

Sincerely,

Jennie S. Green
Consultant
Community Services Unit
(303) 892-2166

JSG/lw

BIOGRAPHICAL SKETCH

Bernice Marie Bass was born an only child in Denver, Colorado, to Mr. and Mrs. Arthur Bass. Upon graduation from Manual High School in Denver, she went to the University of Northern Colorado in Greeley where a Bachelor of Arts degree was granted in 1970, with a Spanish major and a chemistry minor. During that time she worked as a laboratory assistant and electrocardiograph technician at Weld County General Hospital and as a Head Resident in the residence halls at UNC.

A Master of Arts degree was awarded in 1972 in elementary education with special emphases in bilingual bicultural education and reading.

The author began her experience in bilingual bi-cultural education working with kindergarten children in the Johnstown Bilingual Program (Johnstown, Colorado), in 1971. Other Colorado teaching experiences also include: service in the Greeley Public Schools' Home Intervention Oral Language Development Program as a teacher of youngsters aged two to five years old; bilingual kindergarten teaching in the Ft. Lupton Bilingual Program; and teaching in the Brighton Public Schools. In addition, the author served as an Early Childhood Content Specialist in the Early Childhood

Component of the Educational Technology Demonstration Project sponsored by the Education Commission of the States and affiliated with the Federation of Rocky Mountain States during 1973.

In the Fall of 1973, Bernice Marie Bass went to Gainesville, Florida, where she taught Title I reading students at Stephen Foster Elementary School and trained paraprofessionals to assist children with reading problems while at the same time completing her year's residency work at the University of Florida.

The following year, the author returned to Colorado to complete additional college courses in Mexican American Studies and bilingual bicultural education at the University of Northern Colorado, Greeley, where she also served as a teaching assistant in Center for Human Enrichment and graduate assistant to the Director of Bilingual Bicultural Education. Presently, the author serves as a bilingual educational instructor with that University's Outreach and Special Programs Educational Service.

Ms. Bass' permanent residence is Denver, Colorado, where she is involved with schools and organizations interested in the preparation of bilingual bicultural teachers as well as the further development and advancement of bilingual bicultural education programs.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.
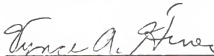
Ruthellen Crews, Chairperson
Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.
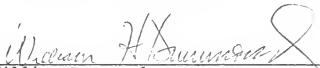
Michael L. Hanes, Co-Chairperson
Assistant Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Vynce A. Hines
Professor of Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

William Drummond
Professor of Education

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1975

B. J. Sharp, by M. C. Bellar
Dean, College of Education

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Dean, Graduate School